IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant : NITSCH et al.
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STATEMENT UNDER 37 C.F.R. §1.821(f)

An initial Sequence Listing is submitted and its entry into the application is respectfully requested. An initial computer-readable form of the Sequence Listing is also submitted, and it is hereby certified that the content of the Sequence Listing information recorded in the computer readable form is identical to the Sequence Listing written on paper, and contains no new matter.

Respectfully submitted,

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RBM/cg

SEQUENCE LISTING

<110> Nitsch, Robert
Ninnemann, Olaf
Braeuer, Anja
Savaskan, Nicolai

<120> Lipid Phosphate Phosphatases and Uses Therefor for Treating Neuronal Diseases

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<151> 2003-09-15

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<151> 2003-02-11

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<151> 2002-09-13

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<170> PatentIn version 3.3

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Thr Asp Ile Ile Gln Leu Ser Thr Gly Tyr Gln Ala Pro Tyr Phe Leu
195 200 205

Thr Val Cys Lys Pro Asn Tyr Thr Ser Leu Asn Val Ser Cys Lys Glu
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Asn Ser Tyr Ile Val Glu Asp Ile Cys Ser Gly Ser Asp Leu Thr Val
225 230 235 240

Ile Asn Ser Gly Arg Lys Ser Phe Pro Ser Gln His Ala Thr Leu Ala
245 250 255

Ala Phe Ala Ala Val Tyr Val Ser Met Tyr Phe Asn Ser Thr Leu Thr
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Asp Ser Ser Lys Leu Leu Lys Pro Leu Leu Val Phe Thr Phe Ile Ile
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Cys Gly Ile Ile Cys Gly Leu Thr Arg Ile Thr Gln Tyr Lys Asn His
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Pro Val Asp Val Tyr Cys Gly Phe Leu Ile Gly Gly Gly Ile Ala Leu
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Tyr Leu Gly Leu Tyr Ala Val Gly Asn Phe Leu Pro Ser Asp Glu Ser
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Asp Pro Asn Arg Leu Leu Ser Ala Lys Asn Gly Ser Ser Ser Asp Gly
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Ser Leu Thr Asn Leu Lys Arg Ala Asn Ala Asp Val Glu Ile Ile Thr
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Pro Arg Ser Pro Met Gly Lys Glu Asn Met Val Thr Phe Ser Asn Thr
405 410 415

Leu Pro Arg Ala Asn Thr Pro Ser Val Glu Asp Pro Val Arg Arg Asn
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Ala Ser Ile His Ala Ser Met Asp Ser Ala Arg Ser Lys Gln Leu Leu
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Thr Gln Trp Lys Asn Lys Asn Glu Ser Arg Lys Leu Ser Leu Gln Val
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580 585 590

Pro Lys Asn Thr Glu Gly Ser Thr Val Ser Cys Thr Gly Ser Ile Arg
595 600 605

Tyr Lys Thr Leu Thr Asp His Glu Pro Ser Gly Ile Val Arg Val Glu
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Ala His Pro Glu Asn Asn Arg Pro Ile Ile Gln Ile Pro Ser Thr Glu
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Gly Glu Gly Ser Gly Ser Trp Lys Trp Lys Ala Pro Glu Lys Gly Ser
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660 665 670

Cys Glu Ser Leu Lys Asp Ser Phe Gly Ser Gly Asp Arg Lys Arg Ser
675 680 685

Asn Ile Asp Ser Asn Glu His His His His Gly Ile Thr Thr Ile Arg
690 695 700

Val Thr Pro Val Glu Gly Ser Glu Ile Gly Ser Glu Thr Leu Ser Ile
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35 40 45

Lys Val Gly Phe Gln Cys Tyr Asp Arg Thr Leu Ser Met Pro Tyr Val
50 55 60

Glu Thr Asn Glu Glu Leu Ile Pro Leu Leu Met Leu Leu Ser Leu Ala
65 70 75 80

Phe Ala Ala Pro Ala Ala Ser Ile Met Val Ala Glu Gly Met Leu Tyr
85 90 95

Cys Leu Gln Ser Arg Leu Trp Gly Arg Ala Gly Gly Pro Ala Gly Ala
100 105 110

Glu Gly Ser Ile Asn Ala Gly Gly Cys Asn Phe Asn Ser Phe Leu Arg
115 120 125

Arg Thr Val Arg Phe Val Gly Val His Val Phe Gly Leu Cys Ala Thr
130 135 140

Ala Leu Val Thr Asp Val Ile Gln Leu Ala Thr Gly Tyr His Thr Pro
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Phe Phe Leu Thr Val Cys Lys Pro Asn Tyr Thr Leu Leu Gly Thr Ser
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Cys Glu Val Asn Pro Tyr Ile Thr Gln Asp Ile Cys Ser Gly His Asp
180 185 190

Ile His Ala Ile Leu Ser Ala Arg Lys Thr Phe Pro Ser Gln His Ala
195 200 205

Thr Leu Ser Ala Phe Ala Ala Val Tyr Val Ser Val Ser Pro Ala Pro
210 215 220

His Cys Pro Ser Gln Ala Leu Leu Leu Thr Arg Gly Glu Pro Ser Leu
225 230 235 240

Thr Pro Thr Pro Met Pro Gln Met Tyr Phe Asn Ser Val Ile Ser Asp
245 250 255

Thr Thr Lys Leu Leu Lys Pro Ile Leu Val Phe Ala Phe Ala Ile Ala
260 265 270

Ala Gly Val Cys Gly Leu Thr Gln Ile Thr Gln Tyr Arg Ser His Pro
275 280 285

Val Asp Val Tyr Ala Gly Phe Leu Ile Gly Ala Gly Ile Ala Ala Tyr
290 295 300

Leu Ala Cys His Ala Val Gly Asn Phe Gln Ala Pro Pro Ala Glu Lys
305 310 315 320

Pro Ala Ala Pro Ala Pro Ala Lys Asp Ala Leu Arg Ala Leu Thr Gln
325 330 335

Arg Gly His Asp Ser Val Tyr Gln Gln Asn Lys Ser Val Ser Thr Asp
340 345 350

Glu Leu Gly Pro Pro Gly Arg Leu Glu Gly Ala Pro Arg Pro Val Ala
355 360 365

Arg Glu Lys Thr Ser Leu Gly Ser Leu Lys Arg Ala Ser Val Asp Val
370 375 380

Asp Leu Leu Ala Pro Arg Ser Pro Met Ala Lys Glu Asn Met Val Thr
385 390 395 400

Phe Ser His Thr Leu Pro Arg Ala Ser Ala Pro Ser Leu Asp Asp Pro
405 410 415

Ala Arg Arg His Met Thr Ile His Val Pro Leu Asp Ala Ser Arg Ser
420 425 430

Lys Gln Leu Ile Ser Glu Trp Lys Gln Lys Ser Leu Glu Gly Arg Gly
435 440 445

Leu Gly Leu Pro Asp Asp Ala Ser Pro Gly His Leu Arg Ala Pro Ala
450 455 460

Glu Pro Met Ala Glu Glu Glu Glu Glu Glu Glu Asp Glu Glu Glu Glu
465 470 475 480

Glu Glu Glu Glu Glu Glu Glu Asp Glu Gly Pro Ala Pro Pro Ser Leu
485 490 495

Tyr Pro Thr Val Gln Ala Arg Pro Gly Leu Gly Pro Arg Val Ile Leu
500 505 510

Pro Pro Arg Ala Gly Pro Pro Pro Leu Val His Ile Pro Glu Glu Gly
515 520 525

Ala Gln Thr Gly Ala Gly Leu Ser Pro Lys Ser Gly Ala Gly Val Arg
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Ala Lys Trp Leu Met Met Ala Glu Lys Ser Gly Ala Ala Val Ala Asn
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565 570 575

Pro Gly Pro Lys Ala Ala Glu Thr Ala Ser Ser Ser Ser Ala Ser Ser
580 585 590

Asp Ser Ser Gln Tyr Arg Ser Pro Ser Asp Arg Asp Ser Ala Ser Ile
595 600 605

Val Thr Ile Asp Ala His Ala Pro His His Pro Val Val His Leu Ser
610 615 620

Ala Gly Gly Ala Pro Trp Glu Trp Lys Ala Ala Gly Gly Gly Ala Lys
625 630 635 640

Ala Glu Ala Asp Gly Gly Tyr Glu Leu Gly Asp Leu Ala Arg Gly Phe
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Arg Gly Gly Ala Lys Pro Pro Gly Val Ser Pro Gly Ser Ser Val Ser
660 665 670

Asp Val Asp Gln Glu Glu Pro Arg Phe Gly Ala Val Ala Thr Val Asn
675 680 685

Leu Ala Thr Gly Glu Gly Leu Pro Pro Leu Gly Ala Ala Asp Gly Ala
690 695 700

Leu Gly Pro Gly Ser Arg Glu Ser Thr Leu Arg Arg His Ala Gly Gly
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35 40 45

Phe Cys Gln Asp Gly Asp Leu Met Lys Pro Tyr Pro Gly Thr Glu Glu
50 55 60

Glu Ser Phe Ile Thr Pro Leu Val Leu Tyr Cys Val Leu Ala Ala Thr
65 70 75 80

Pro Thr Ala Ile Ile Phe Ile Gly Glu Ile Ser Met Tyr Phe Ile Lys
85 90 95

Ser Thr Arg Glu Ser Leu Ile Ala Gln Glu Lys Thr Ile Leu Thr Gly
100 105 110

Glu Cys Cys Tyr Leu Asn Pro Leu Leu Arg Arg Ile Ile Arg Phe Thr
115 120 125

Gly Val Phe Ala Phe Gly Leu Phe Ala Thr Asp Ile Phe Val Asn Ala
130 135 140

Gly Gln Val Val Thr Gly His Leu Thr Pro Tyr Phe Leu Thr Val Cys
145 150 155 160

Lys Pro Asn Tyr Thr Ser Ala Asp Cys Gln Ala His His Gln Phe Ile
165 170 175

Asn Asn Gly Asn Ile Cys Thr Gly Asp Leu Glu Val Ile Glu Lys Ala
180 185 190

Arg Arg Ser Phe Pro Ser Lys His Ala Ala Leu Ser Ile Tyr Ser Ala
195 200 205

Leu Tyr Ala Thr Met Tyr Ile Thr Ser Thr Ile Lys Thr Lys Ser Ser
210 215 220

Arg Leu Ala Lys Pro Val Leu Cys Leu Gly Thr Leu Cys Thr Ala Phe
225 230 235 240

Leu Thr Gly Leu Asn Arg Val Ser Glu Tyr Arg Asn His Cys Ser Asp
245 250 255

Val Ile Ala Gly Phe Ile Leu Gly Thr Ala Val Ala Leu Phe Leu Gly
260 265 270

Met Cys Val Val His Asn Phe Lys Gly Thr Gln Gly Ser Pro Ser Lys

275 280 285

Pro Lys Pro Glu Asp Pro Arg Gly Val Pro Leu Met Ala Phe Pro Arg
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65 70 75 80

Gly Pro Thr Leu Thr Ile Leu Leu Gly Glu Leu Ala Arg Ala Phe Phe
85 90 95

Pro Ala Pro Pro Ser Ala Val Pro Val Ile Gly Glu Ser Thr Ile Val
100 105 110

Ser Gly Ala Cys Cys Arg Phe Ser Pro Pro Val Arg Arg Leu Val Arg
115 120 125

Phe Leu Gly Val Tyr Ser Phe Gly Leu Phe Thr Thr Thr Ile Phe Ala

130 135 140

Asn Ala Gly Gln Val Val Thr Gly Asn Pro Thr Pro His Phe Leu Ser
145 150 155 160

Val Cys Arg Pro Asn Tyr Thr Ala Leu Gly Cys Leu Pro Pro Ser Pro
165 170 175

Asp Arg Pro Gly Pro Asp Arg Phe Val Thr Asp Gln Gly Ala Cys Ala
180 185 190

Gly Ser Pro Ser Leu Val Ala Ala Ala Arg Arg Ala Phe Pro Cys Lys
195 200 205

Asp Ala Ala Leu Cys Ala Tyr Ala Val Thr Tyr Thr Ala Met Tyr Val
210 215 220

Thr Leu Val Phe Arg Val Lys Gly Ser Arg Leu Val Lys Pro Ser Leu
225 230 235 240

Cys Leu Ala Leu Leu Cys Pro Ala Phe Leu Val Gly Val Val Arg Val
245 250 255

Ala Glu Tyr Arg Asn His Trp Ser Asp Val Leu Ala Gly Phe Leu Thr
260 265 270

Gly Ala Ala Ile Ala Thr Phe Leu Val Thr Cys Val Val His Asn Phe
275 280 285

Gln Ser Arg Pro Pro Ser Gly Arg Arg Leu Ser Pro Trp Glu Asp Leu
290 295 300

Gly Gln Ala Pro Thr Met Asp Ser Pro Leu Glu Lys Asn Pro Arg Ser
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Thr Ala Pro Ala Val Ala Thr
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Gly Met Ser Ala Lys Glu Arg Pro Lys Gly Lys Val Ile Lys Asp Ser
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Ser Ser Val Val Ser Leu Tyr Phe Leu Glu Leu Thr Asp Val Phe Lys
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Pro Val His Ser Gly Phe Ser Cys Tyr Asp Arg Ser Leu Ser Met Pro
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Val Arg Phe Val Gly Val His Val Phe Gly Leu Cys Ser Thr Ala Leu
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225 230 235 240

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245 250 255

Ala Ala Phe Ala Ala Val Tyr Val Ser Met Tyr Phe Asn Ser Thr Leu
260 265 270

Thr Asp Ser Ser Lys Leu Leu Lys Pro Leu Leu Val Phe Thr Phe Ile
275 280 285

Ile Cys Gly Ile Ile Cys Gly Leu Thr Arg Ile Thr Gln Tyr Lys Asn
290 295 300

His Pro Val Asp Val Tyr Cys Gly Phe Leu Ile Gly Gly Gly Ile Ala
305 310 315 320

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325 330 335

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340 345 350

Gln Asp Pro Ser Arg Val Leu Ser Ala Lys Asn Gly Ser Ser Gly Asp
355 360 365

Gly Ile Ala His Thr Glu Gly Ile Leu Asn Arg Asn His Arg Asp Ala
370 375 380

Ser Ser Leu Thr Asn Leu Lys Arg Ala Asn Ala Asp Val Glu Ile Ile
385 390 395 400

Thr Pro Arg Ser Pro Met Gly Lys Glu Ser Met Val Thr Phe Ser Asn
405 410 415

Thr Leu Pro Arg Ala Asn Thr Pro Ser Val Glu Asp Pro Val Arg Arg
420 425 430

Asn Ala Ser Ile His Ala Ser Met Asp Ser Ala Arg Ser Lys Gln Leu
435 440 445

Leu Thr Gln Trp Lys Ser Lys Asn Glu Ser Arg Lys Met Ser Leu Gln
450 455 460

Val Met Asp Thr Glu Pro Glu Gly Gln Ser Pro Pro Arg Ser Ile Glu
465 470 475 480

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485 490 495

His Val Pro Gly Asn Gln Tyr Leu Lys Ile Gln Pro Gly Thr Val Pro
500 505 510

Gly Cys Asn Asn Ser Met Pro Gly Gly Pro Arg Val Ser Ile Gln Ser
515 520 525

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565 570 575

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580 585 590

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595 600 605

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610 615 620

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645 650 655

Lys Ser Ser Leu Arg Gln Thr Tyr Glu Leu Asn Asp Leu Asn Arg Asp
660 665 670

Ser Glu Ser Cys Glu Ser Leu Lys Asp Ser Phe Gly Ser Gly Asp Arg
675 680 685

Lys Arg Ser Asn Ile Asp Ser Asn Glu His His His His Gly Ile Thr
690 695 700

Thr Ile Arg Val Thr Pro Val Glu Gly Ser Glu Ile Gly Ser Glu Thr
705 710 715 720

Leu Ser Val Ser Ser Ser Arg Asp Ser Thr Leu Arg Arg Lys Gly Asn
725 730 735

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35 40 45

Lys Val Gly Phe Gln Cys Tyr Asp Arg Ala Leu Ser Met Pro Tyr Val
50 55 60

Glu Thr Asn Glu Glu Leu Ile Pro Leu Leu Met Leu Leu Ser Leu Ala
65 70 75 80

Phe Ala Ala Pro Ala Ala Ser Ile Met Val Gly Glu Gly Met Val Tyr
85 90 95

Cys Leu Gln Ser Arg Leu Trp Gly Arg Gly Pro Gly Gly Val Glu Gly
100 105 110

Ser Ile Asn Ala Gly Gly Cys Asn Phe Asn Ser Phe Leu Arg Arg Thr
115 120 125

Val Arg Phe Val Gly Val His Val Phe Gly Leu Cys Ala Thr Ala Leu
130 135 140

Val Thr Asp Val Ile Gln Leu Ala Thr Gly Tyr His Thr Pro Phe Phe
145 150 155 160

Leu Thr Val Cys Lys Pro Asn Tyr Thr Leu Leu Gly Thr Ser Cys Glu
165 170 175

Ser Asn Pro Tyr Ile Thr Gln Asp Ile Cys Ser Gly His Asp Thr His
180 185 190

Ala Ile Leu Ser Ala Arg Lys Thr Phe Pro Ser Gln His Ala Thr Leu
195 200 205

Ser Ala Phe Ala Ala Val Tyr Val Ser Met Tyr Phe Asn Ala Val Ile
210 215 220

Ser Asp Thr Thr Lys Leu Leu Lys Pro Ile Leu Val Phe Ala Phe Ala
225 230 235 240

Ile Ala Ala Gly Val Cys Gly Leu Thr Gln Ile Thr Gln Tyr Arg Ser
245 250 255

His Pro Val Asp Val Tyr Ala Gly Phe Leu Ile Gly Ala Gly Ile Ala
260 265 270

Ala Tyr Leu Ala Cys His Ala Val Gly Asn Phe Gln Ala Pro Pro Ala

275 280 285

Glu Lys Val Pro Thr Pro Ala Pro Ala Lys Asp Ala Leu Arg Ala Leu
290 295 300

Thr Gln Arg Gly His Glu Ser Met Tyr Gln Gln Asn Lys Ser Val Ser
305 310 315 320

Thr Asp Glu Leu Gly Pro Pro Gly Arg Leu Glu Gly Val Pro Arg Pro
325 330 335

Val Ala Arg Glu Lys Thr Ser Leu Gly Ser Leu Lys Arg Ala Ser Val
340 345 350

Asp Val Asp Leu Leu Ala Pro Arg Ser Pro Met Gly Lys Glu Gly Met
355 360 365

Val Thr Phe Ser Asn Thr Leu Pro Arg Val Ser Thr Pro Ser Leu Asp
370 375 380

Asp Pro Ala Arg Arg His Met Thr Ile His Val Pro Leu Asp Ala Ser
385 390 395 400

Arg Ser Arg Gln Leu Ile Gly Glu Trp Lys Gln Lys Ser Leu Glu Gly
405 410 415

Arg Gly Leu Gly Leu Pro Asp Glu Ala Ser Pro Val His Leu Arg Ala
420 425 430

Pro Ala Glu Gln Val Ala Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu
435 440 445

Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Gly Pro Val Pro Pro Ser
450 455 460

Leu Tyr Pro Thr Val Gln Ala Arg Pro Gly Leu Gly Pro Arg Val Ile
465 470 475 480

Leu Pro Pro Arg Pro Gly Pro Gln Pro Leu Val His Ile Pro Glu Glu
485 490 495

Gly Val Gln Ala Gly Ala Gly Leu Ser Pro Lys Ser Ser Ser Ser Ser
500 505 510

Val Arg Ala Lys Trp Leu Ser Val Ala Glu Lys Gly Gly Gly Pro Val
515 520 525

Ala Val Ala Pro Ser Gln Pro Arg Val Ala Asn Pro Pro Arg Leu Leu
530 535 540

Gln Val Ile Ala Met Ser Lys Ala Ala Gly Gly Pro Lys Ala Glu Thr
545 550 555 560

Ala Ser Ser Ser Ser Ala Ser Ser Asp Ser Ser Gln Tyr Arg Ser Pro
565 570 575

Ser Asp Arg Asp Ser Ala Ser Ile Val Thr Ile Asp Ala His Ala Pro
580 585 590

His His Pro Val Val His Leu Ser Ala Gly Ser Thr Pro Trp Glu Trp
595 600 605

Lys Ala Lys Val Val Glu Gly Glu Gly Ser Tyr Glu Leu Gly Asp Leu
610 615 620

Ala Arg Gly Phe Arg Ser Ser Cys Lys Gln Pro Gly Met Gly Pro Gly
625 630 635 640

Ser Pro Val Ser Asp Val Asp Gln Glu Glu Pro Arg Phe Gly Ala Val
645 650 655

Ala Thr Val Asn Leu Ala Thr Gly Glu Gly Leu Pro Pro Pro Gly Ala
660 665 670

Ser Glu Gly Ala Leu Gly Ala Gly Ser Arg Glu Ser Thr Leu Arg Arg
675 680 685

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690 695 700

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35 40 45

Phe Cys Gln Asp Gly Asp Leu Met Lys Pro Tyr Pro Gly Thr Glu Glu
50 55 60

Glu Ser Phe Ile Ser Pro Leu Val Leu Tyr Cys Val Leu Ala Ala Thr
65 70 75 80

Pro Thr Ala Ile Ile Phe Ile Gly Glu Ile Ser Met Tyr Phe Ile Lys
85 90 95

Ser Thr Arg Glu Ser Leu Ile Ala Glu Glu Lys Met Ile Leu Thr Gly
100 105 110

Asp Cys Cys Tyr Leu Ser Pro Leu Leu Arg Arg Ile Ile Arg Phe Ile
115 120 125

Gly Val Phe Ala Phe Gly Leu Phe Ala Thr Asp Ile Phe Val Asn Ala
130 135 140

Gly Gln Val Val Thr Gly His Leu Thr Pro Tyr Phe Leu Thr Val Cys
145 150 155 160

Gln Pro Asn Tyr Thr Ser Thr Asp Cys Arg Ala His Gln Gln Phe Ile
165 170 175

Asn Asn Gly Asn Ile Cys Thr Gly Asp Leu Glu Val Ile Glu Lys Ala
180 185 190

Arg Arg Ser Phe Pro Ser Lys His Ala Ala Leu Ser Ile Tyr Ser Ala
195 200 205

Leu Tyr Ala Thr Met Tyr Ile Thr Ser Thr Ile Lys Thr Lys Ser Ser
210 215 220

Arg Leu Ala Lys Pro Val Leu Cys Leu Gly Thr Leu Cys Thr Ala Phe
225 230 235 240

Leu Thr Gly Leu Asn Arg Val Ser Glu Tyr Arg Asn His Cys Ser Asp
245 250 255

Val Ile Ala Gly Phe Ile Leu Gly Thr Ala Val Ala Leu Phe Leu Gly
260 265 270

Met Cys Val Val His Asn Phe Arg Gly Thr Gln Gly Ser Pro Ser Lys
275 280 285

Pro Lys Pro Glu Asp Pro Arg Gly Val Pro Leu Met Ala Phe Pro Arg
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Ile Glu Ser Pro Leu Glu Thr Leu Ser Ala Gln Asn His Ser Ala Ser
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Met Thr Glu Val Thr
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Phe Phe Cys Tyr Asp Ser Ala Tyr Ala Lys Pro Tyr Pro Gly Pro Glu
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Ala Ala Ser Arg Ala Pro Pro Ala Leu Ile Tyr Ala Leu Val Thr Ala
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Gly Pro Thr Leu Thr Ile Leu Leu Gly Glu Leu Ala Arg Ala Phe Phe
85 90 95

Pro Ala Pro Pro Ser Ser Ser Pro Val Ser Gly Glu Ser Thr Ile Val
100 105 110

Ser Gly Ala Cys Cys Arg Phe Ser Pro Pro Leu Arg Arg Leu Val Arg
115 120 125

Phe Leu Gly Val Tyr Ser Phe Gly Leu Phe Thr Thr Thr Ile Phe Ala
130 135 140

Asn Ala Gly Gln Val Val Thr Gly Asn Pro Thr Pro His Phe Leu Ser
145 150 155 160

Val Cys Arg Pro Asn Tyr Thr Ala Leu Gly Cys Pro Pro Pro Ser Pro
165 170 175

Asp Arg Pro Gly Pro Asp Arg Phe Val Thr Asp Gln Ser Ala Cys Ala
180 185 190

Gly Ser Pro Ser Leu Val Ala Ala Ala Arg Arg Ala Phe Pro Cys Lys
195 200 205

Asp Ala Ala Leu Cys Ala Tyr Ala Val Thr Tyr Thr Ala Met Tyr Val
210 215 220

Thr Leu Val Phe Arg Val Lys Gly Ser Arg Leu Val Lys Pro Ser Leu
225 230 235 240

Cys Leu Ala Leu Leu Cys Pro Ala Phe Leu Val Gly Val Val Arg Val
245 250 255

Ala Glu Tyr Arg Asn His Trp Ser Asp Val Leu Ala Gly Phe Leu Thr
260 265 270

Gly Ala Ala Ile Ala Thr Phe Leu Val Thr Cys Val Val His Asn Phe
275 280 285

Gln Ser Arg Pro His Ser Gly Arg Arg Leu Ser Pro Trp Glu Asp Leu
290 295 300

Ser Gln Ala Pro Thr Met Asp Ser Pro Leu Glu Lys Asn Pro Arg Pro
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Thr Val Pro Ala Val Ala Thr
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<213> Rattus norvegicus

<400> 9

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Gly Met Ser Ala Lys Glu Arg Pro Lys Gly Lys Val Ile Lys Asp Ser
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Val Thr Leu Leu Pro Cys Phe Tyr Phe Val Glu Leu Pro Ile Leu Ala
65 70 75 80

Ser Ser Val Val Ser Leu Tyr Phe Leu Glu Leu Thr Asp Val Phe Lys
85 90 95

Pro Val His Ser Gly Phe Ser Cys Tyr Asp Arg Ser Leu Ser Met Pro
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Tyr Ile Glu Pro Thr Gln Glu Ala Ile Pro Phe Leu Met Leu Leu Ser
115 120 125

Leu Ala Phe Ala Gly Pro Ala Ile Thr Ile Met Val Gly Glu Gly Ile
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Leu Tyr Cys Cys Leu Ser Lys Arg Arg Asn Gly Ala Gly Leu Glu Pro
145 150 155 160

Asn Ile Asn Ala Gly Gly Cys Asn Phe Asn Ser Phe Leu Arg Arg Ala
165 170 175

Val Arg Phe Val Gly Val His Val Val Gly Leu Cys Ser Thr Ala Leu
180 185 190

Ile Thr Asp Ile Ile Gln Leu Ala Thr Gly Tyr Gln Ala Pro Tyr Phe
195 200 205

Leu Thr Val Cys Lys Pro Met Tyr Thr Ser Leu Glu Gly Ser Cys Lys
210 215 220

Glu Asn Ser Tyr Ile Val Glu Glu Ile Cys Ser Gly Ser Asp Leu Thr
225 230 235 240

Val Ile Asn Asn Gly Lys Lys Ser Phe Pro Ser Gln His Ala Thr Leu
245 250 255

Ala Ala Phe Ala Ala Val Tyr Val Ser Met Tyr Phe Asn Ser Thr Leu
260 265 270

Thr Asp Ser Ser Lys Leu Leu Lys Pro Leu Leu Val Phe Thr Phe Ile
275 280 285

Ile Cys Gly Ile Ile Cys Gly Leu Thr Arg Ile Thr Gln Tyr Lys Asn
290 295 300

His Pro Val Asp Val Tyr Cys Gly Phe Leu Ile Gly Gly Gly Ile Ala
305 310 315 320

Leu Tyr Leu Gly Leu Tyr Ala Val Gly Asn Phe Leu Pro Ser Glu Asp

325 330 335

Ser Met Leu Gln His Arg Asp Ala Leu Arg Ser Leu Thr Asp Leu Asn
340 345 350

Gln Asp Pro Ser Arg Val Leu Ser Ala Lys Asn Gly Ser Ser Gly Asp
355 360 365

Gly Ile Ala His Thr Glu Gly Ile Leu Asn Arg Asn His Arg Asp Ala
370 375 380

Ser Ser Leu Thr Asn Leu Lys Arg Ala Asn Ala Asp Val Glu Ile Ile
385 390 395 400

Thr Pro Arg Ser Pro Met Gly Lys Glu Ser Met Val Thr Phe Ser Asn
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Thr Leu Pro Arg Ala Asn Thr Pro Ser Val Glu Asp Pro Val Arg Arg
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Asn Ala Ser Ile His Ala Ser Met Asp Ser Ala Arg Ser Lys Gln Leu
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Leu Thr Gln Trp Lys Ser Lys Asn Glu Ser Arg Lys Met Ser Leu Gln
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Val Met Asp Ser Glu Pro Glu Gly Gln Ser Pro Pro Arg Ser Ile Glu
465 470 475 480

Met Arg Ser Ser Ser Glu Pro Ser Arg Val Gly Val Asn Gly Asp His
485 490 495

His Val Pro Gly Asn Gln Tyr Leu Lys Ile Gln Pro Gly Thr Val Pro
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Gly Cys Asn Asn Ser Met Pro Ala Gly Pro Arg Val Ser Ile Gln Ser
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Arg Pro Gly Ser Ser Gln Leu Val His Ile Pro Glu Glu Thr Gln Glu
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Asn Ile Ser Thr Ser Pro Lys Ser Ser Ser Ala Arg Ala Lys Trp Leu
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Lys Ala Ala Glu Lys Thr Val Ala Cys Asn Arg Gly Asn Asn Gln Pro
565 570 575

Arg Ile Met Gln Val Ile Ala Met Ser Lys Gln Gln Gly Val Leu Gln
580 585 590

Ser Ser Pro Lys Asn Ala Glu Gly Ser Thr Val Thr Cys Thr Gly Ser
595 600 605

Ile Arg Tyr Lys Thr Leu Thr Asp His Glu Pro Ser Gly Ile Val Arg
610 615 620

Val Glu Ala His Pro Glu Asn Asn Arg Pro Ile Ile Gln Ile Pro Ser
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Ser Thr Glu Gly Glu Gly Ser Gly Ser Trp Lys Trp Lys Ala Pro Glu
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Lys Ser Ser Leu Arg Gln Thr Tyr Glu Leu Asn Asp Leu Asn Arg Asp
660 665 670

Ser Glu Ser Cys Glu Ser Leu Lys Asp Ser Phe Gly Ser Gly Asp Arg
675 680 685

Lys Arg Lys His Ile Asp Ser Asn Glu His His His His Gly Ile Thr
690 695 700

Thr Ile Arg Val Thr Pro Val Glu Gly Ser Glu Ile Gly Ser Glu Thr
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Leu Ser Val Ser Ser Ser Arg Asp Ser Thr Leu Arg Arg Lys Gly Asn
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Ile Phe Tyr Lys Gly Thr Ser Pro Thr Arg Pro Tyr Lys Asp
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<213> Rattus norvegicus

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Val Val Ser Leu Tyr Phe Leu Glu Leu Thr Asp Leu Phe Gln Pro Ala
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Lys Val Gly Phe Gln Cys His Asp Arg Ser Leu Ser Met Pro Tyr Val
    50                  55                  60

Glu Thr Asn Glu Glu Leu Ile Pro Leu Leu Met Leu Leu Ser Leu Ala
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Phe Ala Ala Pro Ala Ala Ser Ile Met Val Gly Glu Gly Met Val Tyr
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Cys Leu Gln Ser Arg Leu Trp Gly Arg Gly Pro Gly Gly Val Glu Gly
            100                 105                 110

Ser Ile Asn Ala Gly Gly Cys Asn Phe Asn Ser Phe Leu Arg Arg Thr
        115                 120                 125

Val Arg Phe Val Gly Val His Val Phe Gly Leu Cys Ala Thr Ala Leu
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Val Thr Asp Val Ile Gln Leu Ala Thr Gly Tyr His Thr Pro Phe Phe
145                 150                 155                 160

Leu Thr Val Cys Lys Pro Asn Tyr Thr Leu Leu Gly Thr Ser Cys Glu
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Ala Asn Pro Tyr Ile Thr Gln Asp Ile Cys Ser Gly His Asp Thr His
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Ala Ile Leu Ser Ala Arg Lys Thr Phe Pro Ser Gln His Ala Thr Leu
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Ser Ala Phe Ala Ala Val Tyr Val Ser Met Tyr Phe Asn Ser Val Ile
210 215 220

Ser Asp Ala Thr Lys Leu Leu Lys Pro Ile Leu Val Phe Ala Phe Ala
225 230 235 240

Ile Ala Ala Gly Val Cys Gly Leu Thr Gln Ile Thr Gln Tyr Arg Ser
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His Pro Val Asp Val Tyr Ala Gly Phe Leu Ile Gly Ala Gly Ile Ala
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Ala Tyr Leu Ala Cys His Ala Val Gly Asn Phe Gln Ala Pro Pro Ala
275 280 285

Glu Lys Val Pro Thr Pro Ala Pro Ala Lys Asp Ala Leu Arg Val Leu
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Thr Gln Arg Gly His Glu Ser Met Tyr Gln Gln Asn Lys Ser Val Ser
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Thr Asp Glu Leu Gly Pro Pro Gly Arg Leu Glu Gly Val Pro Arg Pro
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Val Ala Arg Glu Lys Thr Ser Leu Gly Ser Leu Lys Arg Ala Ser Val
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Asp Val Asp Leu Leu Ala Pro Arg Ser Pro Met Gly Lys Glu Gly Met
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Val Thr Phe Ser Asn Thr Leu Pro Arg Val Ser Thr Pro Ser Leu Asp
370 375 380

Asp Pro Ser Arg Arg His Met Thr Ile His Val Pro Leu Asp Ala Ser
385 390 395 400

Arg Ser Arg Gln Leu Ile Ser Glu Trp Lys Gln Lys Ser Leu Glu Gly
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Arg Gly Leu Gly Leu Pro Asp Glu Ala Ser Pro Ala His Leu Arg Ala
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Pro Ala Glu Gln Val Ala Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu
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Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Gly Pro Val Pro Pro
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Ser Leu Tyr Pro Thr Val Gln Ala Arg Pro Gly Leu Gly Pro Arg Val
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Ile Leu Pro Pro Arg Pro Gly Pro Gln Pro Leu Ile His Ile Pro Glu
485 490 495

Glu Val Val Gln Ala Gly Ala Gly Leu Ser Pro Lys Ser Ser Ala Ser
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Val Arg Ala Lys Trp Leu Ser Met Val Glu Lys Gly Gly Gly Pro Val
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Ala Val Ala Pro Pro Gln Pro Arg Val Ala Asn Pro Pro Arg Leu Leu
530 535 540

Gln Val Ile Ala Met Ser Lys Ala Ala Gly Gly Pro Lys Ala Glu Thr
545 550 555 560

Ala Ser Ser Ser Ser Ala Ser Ser Asp Ser Ser Gln Tyr Arg Ser Pro
565 570 575

Ser Asp Arg Asp Ser Ala Ser Ile Val Thr Ile Asp Ala His Ala Pro
580 585 590

His His Pro Val Val His Leu Ser Ala Gly Ser Thr Pro Trp Glu Trp
595 600 605

Lys Ala Lys Val Val Glu Gly Glu Gly Gly Tyr Glu Leu Gly Asp Leu
610 615 620

Ala Arg Gly Phe Arg Ser Ser Cys Lys Gln Pro Gly Ile Gly Pro Gly

625 630 635 640

Ser Pro Val Ser Asp Val Asp Gln Glu Glu Pro Arg Phe Gly Ala Val
645 650 655

Ala Thr Val Asn Leu Ala Thr Gly Glu Gly Leu Pro Pro Pro Gly Ala
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Ser Glu Gly Ala Leu Gly Ala Gly Ser Arg Glu Ser Thr Leu Arg Arg
675 680 685

Gln Val Gly Ala Leu Gly Glu Arg Glu Val Glu Ala Glu Ala Glu Ser
690 695 700

Tyr Tyr Arg Arg Met Gln Ala Arg Arg Tyr Gln Asp Ala Trp Gln Ser
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Cys Asp Gly Gln Lys Ala Gly Trp Gly Val Thr Thr Ala Pro Pro Ile
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Lys Val His Gly Asn Arg Lys Lys Lys Lys Lys Lys
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<400> 11

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Phe Cys Gln Asp Gly Asp Leu Met Lys Pro Tyr Pro Gly Thr Glu Glu
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Glu Ser Phe Ile Ser Pro Leu Val Leu Tyr Cys Val Leu Ala Ala Thr

65 70 75 80

Pro Thr Ala Ile Ile Phe Ile Gly Glu Ile Ser Met Tyr Phe Ile Lys
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Ser Thr Arg Glu Ser Leu Ile Ala Glu Glu Lys Met Ile Leu Thr Gly
100 105 110

Asp Cys Cys Tyr Leu Ser Pro Leu Leu Arg Arg Ile Val Arg Phe Ile
115 120 125

Gly Val Phe Ala Phe Gly Leu Phe Ala Thr Asp Ile Phe Val Asn Ala
130 135 140

Gly Gln Val Val Thr Gly His Leu Thr Pro Tyr Phe Leu Thr Val Cys
145 150 155 160

Gln Pro Asn Tyr Thr Ser Thr Asp Cys Arg Ala His His Gln Phe Ile
165 170 175

Asn Asn Gly Asn Ile Cys Thr Gly Asp Leu Glu Val Ile Glu Lys Ala
180 185 190

Arg Arg Ser Phe Pro Ser Lys His Ala Ala Leu Ser Ile Tyr Ser Ala
195 200 205

Leu Tyr Ala Thr Met Tyr Ile Thr Ser Thr Ile Lys Thr Lys Ser Ser
210 215 220

Arg Leu Ala Lys Pro Val Leu Cys Leu Gly Asp Leu Cys Thr Ala Phe
225 230 235 240

Leu Thr Gly Leu Asn Arg Val Ser Glu Tyr Arg Asn His Cys Ser Asp
245 250 255

Val Ile Ala Gly Phe Ile Leu Gly Thr Ala Val Ala Leu Phe Leu Gly
260 265 270

Met Cys Val Val His Asn Phe Lys Gly Thr Gln Gly Ser Ala Ser Lys
275 280 285

Pro Lys Pro Glu Asp Pro Arg Gly Val Pro Leu Met Ala Phe Pro Arg
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Met Thr Glu Val Thr
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<210> 12
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<213> Rattus norvegicus

<400> 12

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Ala Tyr Arg Leu Glu Phe Thr Asp Thr Phe Pro Val His Thr Gln Gly
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Phe Phe Cys Tyr Asp Ser Ala Tyr Ala Lys Pro Tyr Pro Gly Pro Glu
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Ala Ala Ser Arg Ala Pro Pro Ala Leu Ile Tyr Ala Leu Val Thr Ala
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Gly Pro Thr Leu Thr Ile Leu Leu Gly Glu Leu Ala Arg Ala Phe Phe
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Pro Ala Pro Pro Ser Ser Ser Pro Val Ser Gly Glu Ser Thr Ile Val
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Ser Gly Ala Cys Cys Arg Phe Ser Pro Pro Leu Arg Arg Leu Val Arg
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Phe Leu Gly Val Tyr Ser Phe Gly Leu Phe Thr Thr Thr Ile Phe Ala
130 135 140

Asn Ala Gly Gln Val Val Thr Gly Asn Pro Thr Pro His Phe Leu Ser
145 150 155 160

Val Cys Arg Pro Asn Tyr Thr Ala Leu Gly Cys Pro Pro Pro Ser Pro
165 170 175

Asp Arg Pro Gly Pro Asp Arg Phe Val Thr Asp Gln Ser Ala Cys Ala
180 185 190

Gly Ser Pro Ser Leu Val Ala Ala Ala Arg Arg Ala Phe Pro Cys Lys
195 200 205

Asp Ala Ala Leu Cys Ala Tyr Ala Val Thr Tyr Thr Ala Met Tyr Val
210 215 220

Thr Leu Val Phe Arg Val Lys Gly Ser Arg Leu Val Lys Pro Ser Leu
225 230 235 240

Cys Leu Ala Leu Leu Cys Pro Ala Phe Leu Val Gly Val Val Arg Val
245 250 255

Ala Glu Tyr Arg Asn His Trp Ser Asp Val Leu Ala Gly Phe Leu Thr
260 265 270

Gly Ala Ala Ile Ala Thr Phe Leu Val Thr Cys Val Val His Asn Phe
275 280 285

Gln Ser Arg Pro His Ser Gly Arg Arg Leu Ser Pro Trp Glu Asp Leu
290 295 300

Ser Gln Ala Pro Thr Met Asp Ser Pro Leu Glu Lys Asn Pro Arg Pro
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Ala Gly Arg Ile Arg His Arg His Gly Ser Pro His Pro Ser Arg Arg
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Thr Val Pro Ala Val Ala Thr
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